

REMARKS

Claims 43-46 and 51-53 are pending in this application. All claims were rejected. In response, Claims 43 and 45 are amended.

Claims 43, 44, and 51 were rejected under 35 U.S.C. §102(e) as anticipated by U.S. Patent No. 6,229,161 (Nemati). Claims 45, 46, 52, and 53 were rejected under 35 U.S.C. §103(a) as unpatentable over Nemati in view of U.S. Patent No. 5,936,267 (Iwamuro).

Nemati discloses a capacitively coupled NDR device used to implement a variety of semiconductor circuits, including high-density SRAM cells and power thyristor structures. However, the Nemati thyristor is formed by using a mask implant for each doping profile.

Amended independent Claim 43 of the present invention now recites a second horizontal device which includes a halo region created using a halo implant to limit a footprint of each memory cell to less than or equal to $6F^2$. Neither Nemati, Iwamuro, nor the combination thereof teach or suggest the above described recitation of amended Claim 1 specifically, limiting memory cell footprint to less than or equal to $6F^2$. The "halo" implant is used in the present invention to save a mask and limit cell space. The halo implant is achieved by implanting the first doping followed by implanting the second doping with a deeper profile, such that two doping profiles are self-aligned, the resulting device size is much smaller, and a saving of one mask is achieved.

Without conceding patentability per se of dependent Claims 44-46 and 51-53, it is respectfully submitted that they are allowable by virtue of their dependence on independent Claim 43.

Applicants submit that pending Claims 43-46 and 51-53 are believed to be in condition for allowance. Allowance is respectfully requested. Should the Examiner believe that a telephone conference or personal interview would facilitate resolution of any remaining matters, the Examiner may contact Applicants' attorney at the number given below.

Respectfully submitted,

A handwritten signature in cursive script, appearing to read "Paul J. Farrell", is written over a horizontal line.

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